

**What is claimed is:**

- [c1] 1.A communication system using a ring network architecture, comprising:  
a plurality of ring members connected in point-to-point fashion along the ring network;  
a transaction based connectivity for communicating a message among the ring members,  
wherein the message is a configuration message that causes ring members to assign address space in the ring network.
- [c2] 2.The communication system of claim 1, wherein the configuration message is processed by each ring member to cause that ring member to assign address space for that ring member, and wherein the configuration message is then passed to the next ring member.
- [c3] 3.The communication system of claim 1, wherein the configuration message includes an address that defines a starting address.
- [c4] 4.The communication system of claim 3, wherein the configuration message is originated by a CPU.
- [c5] 5.The communication system of claim 3, wherein the CPU is an anchor member.
- [c6] 6.The communication system of claim 3, wherein each member processing the configuration message revises the starting address before passing the configuration message to the next ring member.
- [c7] 7.The communication system of claim 3, wherein each member processing the configuration message assigns the address space of the member using the starting address and address space sufficient for that member.
- [c8] 8.The communication system of claim 1, wherein a CPU on the ring network recognizes other ring members using starting addresses assigned to those ring members based on the configuration message.
- [c9] 9.The communication system of claim 8, wherein offsets to the starting addresses of the ring members are used for different commands for the ring

members.

- [c10] 10.The communication system of claim 1, wherein the ring network includes a bridge.
- [c11] 11.The communication system of claim 10, wherein the configuration message is processed by the bridge by assigning address space for the bridge and then passing the configuration message to the other side of the bridge.
- [c12] 12.The communication system of claim 11, wherein the configuration message is processed by the bridge so that a subsequent message is routed according to whether an address associated with the subsequent message corresponds to one side of the bridge or the other side of the bridge.
- [c13] 13.The communication system of claim 12, wherein the subsequent message is passed across the bridge when the address is associated with the one side of the bridge, and wherein the subsequent message is passed through the bridge when the address is associated with the other side of the bridge.
- [c14] 14.The communication system of claim 10, wherein the bridge receiving a configuration message from one side of the ring network responds by recording a first address included in the configuration message, passing the configuration message to the ring members on the other side of the ring network, and recording a second address included in the configuration message when the configuration message arrives from the other side of the ring network.
- [c15] 15.The communication system of claim 14, wherein the first address corresponds to a near side of the bridge and the second address corresponds to a far side of the bridge.
- [c16] 16.The communication system of claim 1, further comprising a second configuration message which causes ring members to respond with descriptive data.
- [c17] 17.The communication system of claim 16, wherein the descriptive data includes address space data for the ring members.

- [c18] 18.The communication system of claim 16, wherein a CPU member on the ring network is adapted to infer the topology of the ring network using the descriptive data.
- [c19] 19.A method of assigning address space in a ring network architecture system including a plurality of ring members, comprising:  
issuing a configuration message;  
processing the configuration message at each ring member to assign address space for that ring member in the ring network;  
modifying the configuration message based on the assigned address space; and  
passing the configuration message to the next ring member.
- [c20] 20.The method of claim 19, wherein the configuration message is issued by a CPU member on the ring network.
- [c21] 21.The method of claim 20, wherein the CPU member is an anchor.
- [c22] 22.The method of claim 19, wherein the configuration message includes a starting address.
- [c23] 23.The method of claim 22, wherein the address space is assigned based on the starting address and the address needs of that ring member.
- [c24] 24.The method of claim 22, wherein the step of modifying comprises modifying the starting address before the step of passing.
- [c25] 25. The method of claim 22, wherein the plurality of ring members includes a bridge, and wherein the bridge responds to the configuration message by configuring logic that provides for a subsequent message to be passed across or by the bridge depending on an address associated with the subsequent message.
- [c26] 26.The method of claim 25, wherein the ring network is adapted to process a first category of message and a second category of message, and wherein the bridge logic is operative only for the second category.
- [c27] 27.The method of claim 26, wherein the first category is a supervisory message

and the second category is a work message.